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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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			ART UNIT	PAPER NUMBER
			2644	

DATE MAILED: 01/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/918,377

Applicant(s)

RATCLIFF ET AL.

Examiner

Con P. Tran

Art Unit

2644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152).
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1, 6-7, 12-13, and 18** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowieson et al. U.S. Patent 6,198,826 (hereinafter, "Cowieson").

Regarding **claim 1**, Cowieson teaches an audio processing machine comprising (see Fig. 1A, 2, 4, and respective portions of the specification):

a plurality of audio inputs (Lin 11, Rin 12; Fig. 1A; col. 2, lines 59-65);

a plurality of audio outputs (Slout 41, Srout 42; Fig. 1A; col. 2, lines 59-65);

a plurality of audio filters (Q-filter 34, Q-filter 43' Q-filter 44; Fig. 1A; col. 2, line 65 – col. 3, line 5);

a plurality of audio processing channels (Left and Right channels; col. 4, lines 54-57); and

a plurality of summers, which when subtracting the input signal from the output of Q-filter, L input 11 is also connected to Q-filter 43 as shown in FIG. 1. This is more clearly shown in FIG. 4. Also, R input 12 is connected to Q-filter 44. Both of these filters may be Q1 filters. The output each Q-filter is subtracted from the opposite input via summers 45 and 46. For example, the output of Q1 filter 44 is subtracted from L input 11 and used as the left rear or surround output 41. Right rear or surround output 42 is similarly formed from the output of Q-filter 43 subtracted from the R input. In this instance the outputs are $L-Q[R]$ for L rear output 41 and $R-Q[L]$ for R rear output 42, and thus the center information is canceled out. Thus summers (45) and (46) function as switches for not outputting any output to Slout and Rlout (45, 46, col. 4, lines 24-37), configured to selectively mix the plurality of audio inputs (Lin, Rin) and the plurality of audio outputs (outputs of Q-filter 43; Q-filter 44) such that audio signals passing through the plurality of audio inputs are processed via a plurality of audio filters (Q-filter 43; Q-filter 44) selected from the plurality of audio filters (Q-filter 43, Q-filter 44; Fig. 1A; col. 4, lines 23-37); and a plurality of audio processing channels selected from the plurality of audio processing channels (Left and Right channel; col. 4, lines 54-57) to generate at least one desired audio output signal (SRout 42; col. 4, lines 24-37).

Cowieson does not specify the switches 45 and 46 are multiply switches. However, in audio processing art, multiply switch is well known. Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate teaching of multiply switch with Cowieson in order to utilize software programming in audio processing.

Regarding **claims 7, 13, and 18**, these claims have similar limitations as claim 1. Therefore, they are rejected under Cowieson for the same reasons set forth in the rejection of claim 1.

Regarding **claims 6, and 12**, the Cowieson's filters are the Q-filters, which can be configured as the biquad filters.

3. Claims 2-3, 8-9, 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowieson et al. U.S. Patent 6,198,826 (hereinafter, "Cowieson") in view of Matheny et al. US. Patent 6,148,314 (hereinafter, "Matheny").

Regarding **claims 2, 8, and 14**, Cowieson teaches audio processing device according to claims 1, 7, and 13, respectively. However, Cowieson reference does not explicitly disclose wherein the plurality of multiply switches are comprised of single-cycle multiply switches.

Matheny teaches the multiplier 18, Fig. 2A performs a single-cycle multiply (col. 5, lines 36-41). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate such teaching with Cowieson in order to allow the processing cycle count for the feedback additions to be reduced, as suggested by Matheny in column 2, lines 40-41.

Regarding **claims 3, 9, and 15**, Cowieson teaches audio processing device according to claims 1, 7, and 13, respectively. Matheny further teaches wherein the plurality of multiply switches are comprised of programmable multiply switches (col. 3, lines 49-57).

4. Claims 4, 10, and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cowieson et al. U.S. Patent 6,198,826 (hereinafter, "Cowieson") in view of Matheny et al. US. Patent 6,148,314 (hereinafter, "Matheny"), and further in view of Tang et al. U.S. Patent 6,298,370 (hereinafter, "Tang").

Regarding **claims 4, 10, and 16**, Cowieson in view of Matheny teaches audio processing device according to claims 3, 9, and 15, respectively. However, Cowieson in view of Matheny does not explicitly disclose wherein the programmable multiply switches are reconfigurable on-the-fly.

Tang teaches a process of a computer system wherein the programmable multiply switches are reconfigurable on-the-fly (col. 116, lines 30-35). Therefore, it would have been obvious to one of the ordinary skill in the art at the time the invention was made to incorporate such teaching of Tang with Cowieson view of Matheny for purpose of allocation logic operations for performing resource management and dynamic load balancing for computer systems, as suggested by Tang in column 116, lines 37-39.

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5. **Claims 1-19** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jacobs U.S. Patent 5,155,743, in view of Rossmere et al. US. Patent 6,092,119, (hereinafter "Rossmere").

Regarding **claim 1**, Jacobs discloses a digital converter for use in audio application comprising:

- a plurality of audio inputs (audio bit-streams 52, 53; Fig. 4);
- a plurality of audio outputs (audio outputs 66,67; Fig. 4);
- a plurality of audio filters (audio filters 11; Fig. 4);
- a plurality of audio processing channels (processing channels 64,65; Fig. 4; col. 11, lines 36-65);

In Jacobs, the audio inputs are processed, filtered such that the audio processing channels (64-65) can be selected to generate at least one desired audio output signal. Jacobs, however, does not explicitly teach a plurality of switches configured to selectively mix the plurality of audio inputs and the plurality of audio outputs.

Rossmere discloses random access audio/video processor with compressed video resampling to allow higher bandwidth throughput. In Rossmere the switches (305, 310, etc.) of the board (152; Fig.3B) are to receive audio inputs and these inputs are to be mixed by the board (160; Fig. 3A), and the board (155; Fig. 3B, see col. 7, line 9 to col. 8, line 25; also see Fig. 2; col. 6, lines 14-61 for overview operation; Figs 10A-10D, 11 show how the switches using multiply: changing the ratio or may ramping the ratio during switching; col. 14, lines 21-54).

It would have been obvious to one of ordinary skill in the art, at the time invention was made, to employ a mechanism where switches and mixer are used to mix the audio inputs and outputs as taught by Rosemere into the system of Jacobs such that to provide a system with input audio streams to be mixed, filtered, and to be reconfigured with audio outputs such that to provide a quality audio output signals via audio processing channels for music production (col. 14, lines 59-67).

Regarding **claims 7, 13, and 18**, these claims have similar limitations as claim 1. Therefore, they are rejected under Jacobs-Rossmere for the same reasons set forth in the rejection of claim 1.

Regarding **claims 2, 8, and 14**, the Rossmere's switches can be configured as single-cycle multiply switches.

Regarding **claims 3, 9, and 15**, the Rossmere's switches are programmable switches.

Regarding **claims 4, 10, and 16**, the Jacobs's audio inputs are the audio bit-streams, which can be configured on the fly.

Regarding **claims 6, and 12**, the Jacobs's filters are the low pass-filters, which can be configured as the biquad filters.

Response to Arguments

6. Applicant's arguments filed on June 30, 2004 have been fully considered but they are not persuasive.

7. Applicant asserts on page 2, regarding claim 1:

"Applicants agree with the Examiner as evidence by page 3 of the Office Action that Cowieson does not disclose the switches 45 and 48 as multiply switches.

The Examiner alleged that it would have been obvious to one of ordinary skill in the art at the time to incorporate multiply switches. However, as evidence on page 2, lines 10-15 of the instant application the use of multiply rather than other forms of decision logic minimizes the use of branching and allows "morphing" from one setting to another. . .

Matheny does not cure the above noted defects."

Examiner respectfully disagrees. Regarding Applicant's argument - allows "morphing" from one setting to another -, the claims themselves do not contain this limitation therefore that limitation needs not be considered.

8. Applicant further asserts on page 3, regarding claims 1, 7, 13, and 18:

"Tang, discloses that at column 116, lines 31-35 table zero is also utilized to determine on the fly whether the default predetermination should be overridden and another processor be used to execute the granule instead.

This has nothing to do with multiply circuit."

Examiner respectfully disagrees. Since the rejections based upon the combination of cited references, it is Cowieson in view of Matheny teaches programmable multiply switches, and Cowieson in view of Matheny further in view of Tang teaches the claimed multiply switches are configurable on-the fly. Motivation to combine configurable on-the fly teaching is from Tang, as presented above in the Office Action.

9. Applicant asserts on page 4, regarding claims 1, 17, 13, and 18:

“There is nothing to indicate that switches 305 and 310 of Rossmere relate to multiply switches.”

Examiner respectfully disagrees. As presented above in the rejections, switches 305 and 310 (Fig. 3B) are detailed switch 120 of Fig. 2. Examiner would like to restate please see Fig. 2; col. 6, lines 14-61 for overview operation switches 305 and 310; also Figs 10A-10D, 11 show how the switches using multiply: changing the ratio or may ramping the ratio during mixing; col. 14, lines 21-54.

Conclusion

10. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Con P. Tran, whose telephone number is (703) 305-2341. The examiner can normally be reached on M - F (8:30 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CPT CPJ
January 10, 2005


HUYEN LE
PRIMARY EXAMINER